Notice of Allowability	Application No.	Applicant(s)	
	10/029,345	JACKSON ET AL.	
	Examiner	Art Unit	
	Sheridan L. Swope	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Amdt of January 4, 2005*.

2. ☒ The allowed claim(s) is/are *26-30,38-47 and 57-69*.

3. ☒ The drawings filed on *20 December 2001* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date January 21, 2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Applicant's response, on January 4, 2005, to the First Action on the Merits of this case mailed July 14, 2004, is acknowledged. It is acknowledged that applicants have cancelled Claims 1-25, 31-37, and 48-56, amended Claims 26, 28, and 39, and added Claims 57-69. Claims 26-30, 38-47, and 57-69 are pending and are hereby considered.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Specification

In the title, delete the word–Novel–.

Claims

Replace Claims 26-30, 38-47, and 57-69 with the following.

26. An isolated nucleic acid molecule comprising a polynucleotide sequence selected from the group consisting of:

(a) an isolated polynucleotide encoding a polypeptide comprising amino acids 1 to 665 of SEQ ID NO:109; and

(b) an isolated polynucleotide encoding a polypeptide comprising amino acids 2 to 665 of SEQ ID NO:109.

27. The isolated nucleic acid molecule of claim 26, wherein said polynucleotide is (a).

28. The isolated nucleic acid molecule of claim 27, wherein said polynucleotide comprises nucleotides 538 to 2532 of SEQ ID NO:108.

29. The isolated nucleic acid molecule of claim 26, wherein said polynucleotide is (b).

30. The isolated nucleic acid molecule of claim 29, wherein said polynucleotide comprises nucleotides 541 to 2532 of SEQ ID NO:108.

38. A recombinant vector comprising the isolated nucleic acid molecule of claim 26.

39. A recombinant host cell comprising the vector sequence of claim 38.

40. A method of making an isolated polypeptide comprising:

(a) culturing the recombinant host cell of claim 39 under conditions such that said polypeptide is expressed; and

(b) recovering said polypeptide.

41. The isolated polynucleotide of claim 26 wherein said nucleic acid sequence further comprises a heterologous nucleic acid sequence.

42. The isolated polynucleotide of claim 41 wherein said heterologous nucleic acid sequence encodes a heterologous polypeptide.

43. The isolated polynucleotide of claim 42 wherein said heterologous polypeptide is the Fc domain of immunoglobulin.

44. An isolated nucleic acid molecule comprising a polynucleotide selected from the group consisting of:

(a) a polynucleotide comprising the cDNA clone contained in plasmid RET31 in ATCC Deposit No. PTA-3434; and

(b) a polynucleotide comprising the cDNA clone contained in plasmid BMY_HPP5 in ATCC Deposit No. PTA-2966.

45. The isolated polynucleotide of claim 44 wherein said nucleic acid sequence further comprises a heterologous nucleic acid sequence.

46. The isolated polynucleotide of claim 45 wherein said heterologous nucleic acid sequence encodes a heterologous polypeptide.

47. The isolated polynucleotide of claim 46 wherein said heterologous polypeptide is the Fc domain of immunoglobulin.

57. An isolated polynucleotide comprising a polynucleotide encoding amino acids 2 to 665 of SEQ ID NO:109 comprising amino acid substitutions at amino acid residue 180, at amino acid residue 193, at amino acid residue 293, and at amino acid residue 315, wherein the substitute amino acid at amino acid residue 180 is methionine, the substitute amino acid at amino

acid residue 193 is asparagine, the substitute amino acid at amino acid residue 293 is alanine, and the substitute amino acid at amino acid residue 315 is proline, and wherein said polypeptide has phosphatase activity, or is catalytically inactive yet retains ability to bind to a phosphoprotein substrate.

58. An isolated polynucleotide comprising a polynucleotide encoding amino acids 2 to 665 of SEQ ID NO:109 comprising amino acid substitutions at amino acid residue 5, at amino acid residue 180, at amino acid residue 193, at amino acid residue 284, at amino acid residue 302, and at amino acid residue 584, wherein the substitute amino acid at amino acid residue 5 represents an amino acid deletion at this position, the substitute amino acid at amino acid residue 180 is methionine, the substitute amino acid at amino acid residue 193 is asparagine, the substitute amino acid at amino acid residue 284 is serine, the substitute amino acid at amino acid residue 302 is alanine, and the substitute amino acid at amino acid residue 584 is arginine, and wherein said polypeptide has phosphatase activity.

59. An isolated polynucleotide comprising a polynucleotide encoding amino acids 2 to 665 of SEQ ID NO:109 comprising amino acid substitutions at amino acid residue 5, at amino acid residue 6, at amino acid residue 180, at amino acid residue 193, and at amino acid residue 284, wherein the substitute amino acid at amino acid residue 5 is isoleucine, the substitute amino acid at amino acid residue 6 is valine, the substitute amino acid at amino acid residue 180 is methionine, the substitute amino acid at amino acid residue 193 is asparagine, and the substitute amino acid at amino residue 284 is serine, and wherein said polypeptide has phosphatase activity.

60. An isolated polynucleotide encoding a polypeptide comprising amino acids 1 to 302 of SEQ ID NO:109.

61. The isolated nucleic acid molecule of claim 60, wherein said polynucleotide comprises nucleotides 538 to 1443 of SEQ ID NO:108.

62. An isolated polynucleotide encoding a polypeptide comprising amino acids 2 to 302 of SEQ ID NO:109.

63. The isolated nucleic acid molecule of claim 62, wherein said polynucleotide comprises nucleotides 541 to 1443 of SEQ ID NO:108.

64. An isolated polynucleotide encoding a polypeptide comprising at least 473 contiguous amino acids of SEQ ID NO:109, wherein said at least 473 contiguous amino acids of SEQ ID NO:109 has phosphatase activity.

65. The isolated nucleic acid molecule of claim 64, wherein said polynucleotide comprises at least 1419 contiguous nucleotides of SEQ ID NO:108.

66. An isolated polynucleotide which represents the complementary sequence of:

(a) the isolated polynucleotide (a) of claim 26;

(b) the isolated polynucleotide (b) of claim 26;

(c) the isolated polynucleotide of claim 60;

(d) the isolated polynucleotide of claim 62; or

(e) the isolated polynucleotide of claim 64.

67. An isolated polynucleotide encoding a polypeptide comprising amino acids 1 to 302 of SEQ ID NO:109, wherein said encoded polypeptide comprises amino acid substitutions at amino acid residue 5, at amino acid residue 6, at amino acid residue 180, at amino acid residue 193, and at amino acid residue 284, wherein the substitute amino acid at amino acid residue 5 is isoleucine, the substitute amino acid at amino acid residue 6 is valine, the substitute amino acid at amino acid residue 180 is methionine, the substitute amino acid at amino acid residue 193 is asparagine, and the substitute amino acid at amino residue 284 is serine, wherein said polypeptide has phosphatase activity.

68. An isolated polynucleotide encoding a polypeptide comprising amino acids 2 to 302 of SEQ ID NO:109, wherein said encoded polypeptide comprises amino acid substitutions at amino acid residue 5, at amino acid residue 6, at amino acid residue 180, at amino acid residue 193, and at amino acid residue 284, wherein the substitute amino acid at amino acid residue 5 is isoleucine, the substitute amino acid at amino acid residue 6 is valine, the substitute amino acid at amino acid residue 180 is methionine, the substitute amino acid at amino acid residue 193 is asparagine, and the substitute amino acid at amino residue 284 is serine, wherein said polypeptide has phosphatase activity.

69. An isolated polynucleotide encoding a polypeptide comprising amino acids 2 to 302 of SEQ ID NO:109, wherein said encoded polypeptide comprises amino acid substitutions at amino acid residue 180, at amino acid residue 193, and at amino acid residue 293, wherein the

substitute amino acid at amino acid residue 180 is methionine, the substitute amino acid at amino acid residue 193 is asparagine, and the substitute amino acid at amino residue 293 is alanine, wherein said polypeptide has phosphatase activity.

Authorization for this examiner's amendment was given in a telephone interview with Steve D'Amico on March 4, 2005.

Allowable Subject Matter

Claims 26-30, 38-47, and 57-69 are allowed.

The following is an examiner's statement of reasons for allowance:

All elected Claims, 26-30, 38-47, and 57-69, are limited to isolated nucleic acid molecules, vectors, host cells, and methods of making the encoded protein of the nucleotide sequence of SEQ ID NO: 109 or encoding the amino acid sequence of SEQ ID NO: 108, or variants thereof. The utility of said polynucleotides, as encoding a phosphatase, or an inactive variant thereof, is credible based on homology to proteins with known phosphatase activity. Masuda et al 2001 (IDS) teach a polynucleotide encoding a protein having 90% identity with SEQ ID NO: 109. Of the catalytic domain of Masuda's protein, 136 out 140 residues (97.1%), including the active-site Asp^{213} and Cys^{244} residues, are conserved in SEQ ID NO: 109. Masuda et al teach that their protein has 76% identity within the catalytic domain (pg 39004, parg 4) to a well-established phosphatase (Johnson et al, 2000; Fig 8). Furthermore, Masuda et al demonstrate that a dominant negative mutant of their protein blocks dephosphorylation of members of the MAP kinase family (Fig 7). These data would lead one of skill in the art to conclude that the protein set forth by SEQ ID NO: 109 is a phosphatase and that the *in vivo* substrate is a kinase within the MAP kinase family.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheridan L. Swope whose telephone number is 571-272-0943. The examiner can normally be reached on M-F; 9:30-7 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Sheridan Lee Swope, Ph.D.

REBECCA E. PROUTY
PRIMARY EXAMINER
GROUP ~~1800~~ 1600